Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of claims:

1 - 29 (canceled).

30. (previously presented) A self testing protection device including a plurality of line terminals configured to be connected to an alternating current (AC) electrical distribution system, and a plurality of load terminals configured to be connected to at least one load, the device comprising:

a ground fault simulation circuit for producing a simulated ground fault during a first predetermined half-cycle of AC power;

a detector coupled to the ground fault simulation circuit, the detector configured to detect the simulated ground fault during the first predetermined half-cycle of AC power, and transmit a detection signal in response thereto; and

an alarm circuit coupled to the detector, the alarm circuit being configured to generate an alarm signal if the detection signal is not generated within a predetermined period of time.

31. (previously presented) The protection device according to claim 30, wherein the alarm circuit includes a ringing circuit configured to produce a ringing signal in response to detecting the detection signal.

32. (previously presented) The protection device according to claim 30 , the device further comprising a circuit interrupter coupled to the alarm circuit, the circuit interrupter being configured to decouple the plurality of line terminals from the plurality of load terminals in

response to the alarm signal, the alarm signal being generated during a second predetermined half cycle of AC power.

33. (previously presented) The protection device according to claim 32, the device further comprising all indicator coupled to the alarm circuit, the alarm circuit being configured to actuate the indicator if an alarm signal is generated.

34. (previously presented) The protection device according to claim 33, the circuit interrupter neither including a reset mechanism coupled to the alarm circuit, the reset mechanism being disabled by the alarm signal.

35. (previously presented) The protection device according to claim 30, the device including all indicator wherein the alarm circuit is configured to activate the indicator if the alarm signal is generated.

36. (previously presented) The protection device according to claim 35, wherein the indicator is permanently activated if the alarm signal is generated.

37. (previously presented) The protection device according to claim 30, wherein the ground fault simulation circuit includes a bypass circuit for selectively conducting current during the first predetermined half cycle of the AC power.

38. (previously presented) The protection device according to claim 30, wherein the detector produces the detection signal during a second predetermined half-cycle of the AC power when a nonsimulated fault is detected by the detector.

39. (previously presented) The protection device according to claim 38, wherein the non-simulated fault is a ground fault.

40. (previously presented) The protection device according to claim 38, wherein the non-simulated fault is an arc fault.

41. (previously presented) The protection device according to claim 38, the device further including a circuit interrupter coupled to the detector, the circuit interrupter being configured to decouple the plurality of line terminals from the plurality of load terminals in response to the detection signal.

42. (previously presented) The protection device according to claim 41, the circuit interrupter further including a reset mechanism configured to reset the circuit interrupter after the non-simulated fault has been corrected.

43. (previously presented) The protection device according to claim 42, wherein the reset mechanism is in a lock-out state if the detector fails to transmit the detection signal during the first predetermined half cycle of AC power.

44. (previously presented) The protection device according to claim 41, the device further comprising a switch coupled to the detector and the alarm circuit, the switch being configured to trip the circuit interrupter in response to receiving the detection signal during the second predetermined half-cycle, or in response to receiving the alarm signal.

45. (previously presented) The protection device according to claim 41, the device further comprising a switch coupled to the detector, the switch being configured to trip the circuit interrupter in response to receiving the detection signal during the second predetermined half-cycle.

46. (previously presented) The protection device according to claim 45, the circuit interrupter further comprising:

a solenoid having an inductance; and

a capacitor coupled to the solenoid and the alarm circuit, the capacitor having an electrical charge, the capacitor being configured to generate a ringing signal when the switch is closed, all alarm signal being generated if the detection signal and/or the ringing signal are not generated within the predetermined period of time.

47. (previously presented) The protection device according to claim 46, further comprising a diode coupled to at least one terminal of the capacitor to thereby generate the charge in the capacitor during the second predetermined half cycle of the AC power.

48. (previously presented) The protection device according to claim 46, further comprising a snubber circuit coupled to the switch and the alarm signal, the snubber circuit being configured to detect the ringing signal, the alarm signal being generated if the ringing signal is not detected.

49. (previously presented) The protection device according to claim 46, further comprising all inductor coupled to the solenoid, the inductor being configured to detect the ringing signal, the alarm signal being generated if the ringing signal is not detected.

50. (previously presented) The protection device according to claim 45, wherein the switch is configured to not trip the circuit interrupter in response to receiving the detection signal during the first predetermined half-cycle of AC power.

51. (previously presented) The protection device according to claim 30, wherein the alarm circuit includes a timing circuit configured to generate the alarm signal if the detection signal is not received within the predetermined period of time.

52. (previously presented) The protection device according to claim 51, wherein the timer circuit is coupled to a power supply that operates independently from a remaining portion of the protection device.

53. (previously presented) The protection device according to claim 30, wherein said protection device is selected from a group comprising a GFCI device, a GFEP device, or an AFCI device.

54. (previously presented) A self testing protection device including a plurality of line terminals configured to be connected to an alternating current (AC) electrical distribution system, and a plurality of load terminals configured to be connected to at least one load, the device comprising:

a ground fault sensor coupled to the electrical distribution system, the ground fault sensor being energized by a first polarity of AC power provided by the AC electrical distribution system;

a first detector coupled to the ground fault sensor, the first detector being configured to generate a first detection signal, the first detection signal indicating that each ground fault detection component in the self testing protection device is operational;

a resonant talk circuit coupled to the first detector, the resonant tank circuit being configured to generate a resonant oscillating signal in response to receiving the first detection signal; and

a second detector coupled to the resonant tank circuit, the second detector generating all alarm signal if the resonant oscillating signal is not received within a predetermined period of time.

55. (previously presented) A protection device according to claim 54, wherein said resonant tank circuit further comprises:

a solenoid circuit; and

a switch coupled to the solenoid circuit, the switch transmitting current through the tripping solenoid circuit only during the first polarity of the AC power.

56. (previously presented) The protection device according to claim 55, the tank circuit, the capacitor being configured to energize the resonant tank circuit during a second polarity of said AC power source.

57. (previously presented) The protection device according to claim 55, wherein the switch is selected from a group comprising a silicon-controlled rectifier (SCR) or an electronic switch.

58. (previously presented) The protection device according to claim 55, wherein the first detector comprises a snubber circuit, a diode, and an inductor.

59. (previously presented) The protection device according to claim 55, wherein the second detector is configured to trip the solenoid circuit.

60. (previously presented) The protection device according to claim 59, wherein the second detector includes all indicator, the indicator being energized when a fault exists.

61. (previously presented) The protection device according to claim 59, wherein the second detector includes a lock-out mechanism configured to prevent the protection device from being reset.

62. (previously presented) The protection device according to claim 54, wherein said second detector includes all indicator, the indicator being energized when a fault exists.

63. (previously presented) The protection device according to claim 54, wherein the second detector includes a lock-out mechanism configured to prevent the protection device from being reset.

64. (previously presented) The protection device according to claim 54, wherein said protection device is one of a GFCI device, a GFEP device, and an AFCI device.

65. (canceled) A method for self-testing a protection device connected between two lines of an AC power line, comprising the steps of

introducing a simulated ground fault during a first predetermined half cycle of AC power;

detecting said introduced simulated ground fault during said first predetermined half cycle; and

responding to an absence of detecting said introduced simulated ground fault.

66. (previously presented) A method for self-testing a protection device connected between two lines of an AC power line, comprising the steps of

introducing a simulated ground fault during a negative half cycle of AC power;

attempting to detect the simulated ground fault during the negative predetermined half cycle; and

generating an alarm signal if the step of attempting is a failure.

67. (previously presented) The method of claim 66, wherein the step of generating includes tripping the protection device on a positive half-cycle of AC power.